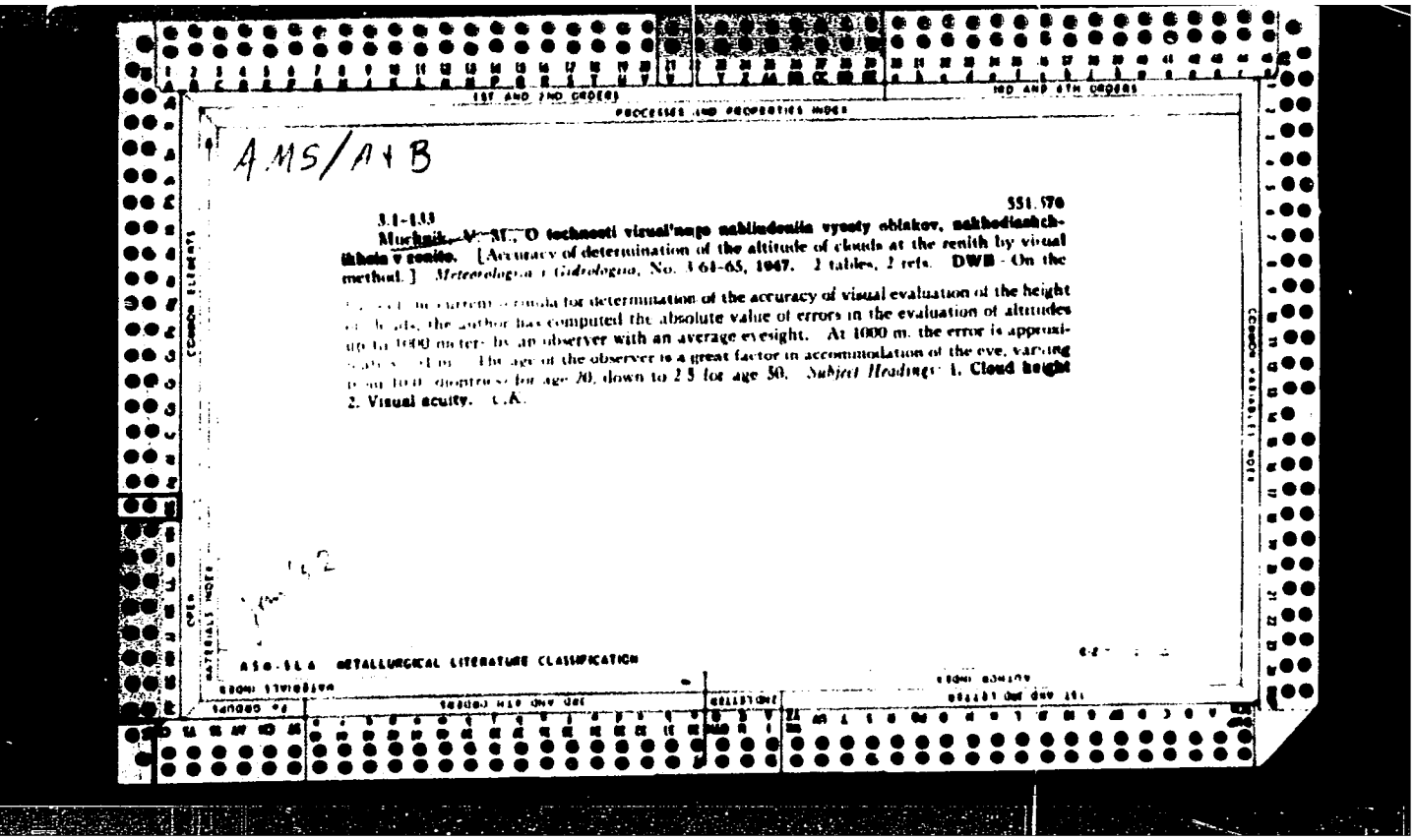

AMS/A+B

551.570

3.1-133

Muchnik, V. M. O tochnosti visual'nogo nablindeniia vysoty oblakov, nakhodiashchikhsia v zenite. [Accuracy of determination of the altitude of clouds at the zenith by visual method.] *Meteorologiia i Gidrologiia*, No. 1 61-65, 1947. 2 tables, 2 refs. DWB - On the

[illegible] current formula for determination of the accuracy of visual evaluation of the height [illegible], the author has computed the absolute value of errors in the evaluation of altitudes up to 1000 meters by an observer with an average eyesight. At 1000 m. the error is approxi- [illegible] The age of the observer is a great factor in accommodation of the eye, varying [illegible] degrees for age 20, down to 2.5 for age 50. *Subject Headings*: 1. Cloud height 2. Visual acuity. C.A.

A50-114 METALLURGICAL LITERATURE CLASSIFICATION

MUCHNIK, V. M.

Lightning - Kiev

Ball of lightning over Kiev, January 10, 1944. Met. i gidrol., No. 6, 1947.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

MUCHNIK, V. M.

Thunderstorms

Intensification of rain immediately after an electric discharge. met. i gidrol. no. 3, 1949.

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

USSR/Physics May 49
Polarization

"Mechanism of Electrification of Solids and Liquids During Dispersion," V. M. Muchnik, Kiev, 1 p

"Zhur Eksper i Teoret Fiz" Vol XIX, No 5

Introduces some results obtained by G. Simpson (Phil Trans, 209, 379, 1909) which are contradictory to results obtained by Ya. I. Frenkel' in the study of surplus surface charges on the surface of a polar liquid (due to difference in transition energies of ions with different signs on the surface) for the case of pure water containing only ions H^+ and OH^-. Submitted 15 Nov 48.

46/49T94

MUCHNIK, V. M.

TA 175T62

USSR/Meteorology - Clouds Mar/Apr 50

"Visual Determination of Cloudiness," V. M. Muchnik

"Iz v-s Geograf Obshch" Vol LXXXII, No 2, pp 204, 205

Cites 2 examples to prove that "apparent" or visual cloud cover of the sky and actual cover may be quite [redacted] For example, observer standing approx 6 miles away from base of cloud with another cloud 1 km away (closer to observer) at the same height (1,000 m) will see solid cloud cover between them because of angle of vision and vertical extent of the clouds.

[redacted] 175T62

MUCHNIK, V. M.

"Melting of Ice Particles During Precipitation," Trudy Kiyevskoy geofizicheskoyobservatorii / Proceedings of the Kiev Geophysical Observatory_/, No 1, 1952.

MUCHNIK, V.M.

Investigation of electrification in the case of a collison of solid particles in an electrical field. Meteor.i gidrol. no.2: 28-29 F '52. (MLRA 8:9)

(Atmospheric electricity)

MUCHNIK, V. M. PA 237T52

USSR/Geophysics - Hail Nov/Dec 52

"Influence of an Electric Field on the Electrification Process in Thunder Clouds," V. M. Muchnik, Kiev Geophys Observatory

"Iz Ak Nauk SSSR, Ser Geofiz" No 6, pp 79-82

Presents results of investigations of electrification during disintegration of drops (spontaneous disintegration of large drops during falling; disintegration of drops during breaking off from melting ice -- hailstone model; disintegration of drops during collision with spheres -- hailstone model), in an electric field. Applies results of exptl investigation to electrification processes in thunder clouds.

237T52

MUCHNIK, V.M.

Electrization occurring during the collision of spheres and drops in the electric field. Trudy GGO no.35:35-41 ' 52. (MIRA 12:1)
(Hail) (Atmospheric electricity)

MUCHNIK,V.M.

Concerning Professor V.M.Golovtsin,'s report "Why there are periods of rain and drought." Meteor.i gidrol. no.2:59-60 F '53. (MLRA 8:9)

1. Kiyevskaya nauchno-issledovatel'skaya geograficheskaya observatoriya
(Rain and rainfall) (Droughts)

MUCHNIK, V.M.

"Predicting the Phase State of Precipitation," Meteorologiya i gidrologiya / Meteorology and Hydrology /, No 7, 1953.

MUCHNIK, V. N.

"The Influence of an Electric Field on the Formation of Charges in Storm Clouds." Cand Phys-Math Sci, Ukrainian Sci Res Hydrometeorological Inst, Kiev, 1954. (KL, No 7, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

MUCHNIK, V. M. and SHMUKLER, A. Kh.

"Thawing of Hail During Falling".
Trudy Ukr. n.-i. gidro-meteorol. in-ta, No 1, pp 48-72, 1954.

Investigation of the equations of motion of hailstones and the equations determining the flows of heat and substance permitted treatment of the problem of the variations in the dimensions of hailstones during their movement in the atmosphere In the solution of the problem it is assumed that the hailstone at all times remains spherical and that for hailstone radius greater than 0.3 cm one can disregard the thickness of the aqueous film covering the hailstones. From the factors determining the change in the size of hailstones during their movement the authors consider the flows of water and heat that arise under the influence of condensation, heat conduction, deposition of cloud elements upon the hailstones, friction, and radiation. Analysis of the equations of heat and mass balance of hailstones permits the conclusion that during change in radius three cases are encountered: (a) thawing, (b) "wet growth" (water film on the surface of the ice), (c) "dry" or "maximum" growth" (temperature less than 0 and the water is not torn from the hailstones with height from R to R_n is obtained by a joint solution of the equations of motion and heat and mass equilibrium (R_n is the radius at a given height). (RZhGeol, No 7, 1955)

SO: Sum No 884, 9 Apr 1956

MUCHNIK, V.M.

USSR/Physics - Ionization of drops FD 411

Card 1/1

Author : Muchnik, V. M.

Title : Ionization during disruption of drops in an electric field

Periodical : Zhur. eksp. i teor. fiz. 26, 109-114, Jan 1954

Abstract : Investigates the ionization in the case of disruption of drops in an electric field. Establishes that the ionization is proportional to the strength of the electric field. Obtains new empirical data for ionization in the case of the ballo-electric effect. Continuation of author's work in Meteorologiya i Gidrologiya, No 4, 19, 1949. Cites his related article in Izv. AN SSSR, Ser. Geofiz. 6, 79, 1952. States that his results are of interest in the theory of therapeutic apparatus based on the action of ions upon the human organism (Ye. A. Chernyavskiy, Sbornik "Problems of Health Resorts in Uzbekistan", XII, Acad Sci Uzbek SSR, Tashkent, 1951, p 140)

Institution : Ukrainian Scientific-Research Hydrometeorological Institute [Ukrainskiy Nauchno-Issledovatel'skiy Gidrometeorologicheskiy Institut]

Submitted : May 12, 1953

Muchnik, V. M.

USSR/Geophysics - Clouds

Card 1/1 Pub. 22 - 13/45

Authors : Muchnik, V. M.

Title : Chain process charge accumulation in thunder clouds

Periodical : Dok. AN SSSR 99/4, 537-538, Dec 1, 1954

Abstract : Accumulation of electric charges in clouds is discussed. The formation of thunder clouds with positive and negative charges is explained. By logical deductions, the chain law of charge accumulation in clouds is derived and expressed as follows: $Q_p = Q_o e^{\alpha t_p}$. The symbols are explained. Five USSR references (1949-1954).

Institution : Ukrainian Scientific Research Hydro-Meteorological Institute

Presented by: Academician G. A. Gamburtsev, June 14, 1954

MUCHNIK, V. M.

AID P - 1441

Subject : USSR/Meteorology and Hydrology

Card 1/1 Pub. 17-a - 15/23

Author : Muchnik, V. M.

Title : Some questions on the methods of observations of showers and thunderstorms

Periodical : Met. i gidro., 1, 46-48, Ja - F 1955

Abstract : The method of recording observations of thunderstorms and showers is called inadequate, because the duration of each storm, when one storm follows immediately after another, and the period and amount of precipitation are seldom given. An improved method of recording is suggested. A chart, a table and one Russian reference

Institution: Main Administration of the Hydrometeorological Service at the Council of Ministers of USSR

Submitted : No date

Translation M-739, 30 Aug 55

MUCHNIK, V.M.

Chain process of charge accumulation in thunder clouds. Trudy Ukr. NIGMI no.3:98-102 '55. (MLRA 9:10)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.
(Clouds) (Thunderstorms) (Atmospheric electricity)

VOLEVAKHA, N. M.; MUCHNIK, V.M.

Forecasting the phase condition of precipitation and ice storms.
Trudy Ukr.NIGMI no.4:36-41 '55. (MLRA 10:1)
(Precipitation (Meteorology))

MUCHNIK, V.M.

Formation of large drops in heavy thunderstorms. Trudy Ukr.NIGMI no.4:42-44 '55. (MIRA 10:1)
(Rain and rainfall)

MUCHNIK, V.M., SHMUKLER, A.Kh.

Workman-Reynolds theory of thunderstorms. Izv.AN SSSR. Ser.geofiz. no.1: 112-113 Ja '56. (MLRA 9:3)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

(Thunderstorms)

MUCHNIK, V.M.

Problems in forecasting thunderstorms. Meteor. i gidrol.no3: 32-33 Mr '56. (Thunderstorms) (MIRA 9:7)

KUCHNIK, V.M.

M.V. Lomonosov's opinion about the formation of hail. Trudy Ukr. NIGMI no.5:67-69 '56. (MLRA 10:9)
(Hail)

MUCHNIK, V.M.

Some conclusions from the observations of atmospheric electricity in Kiev from 1949-1953. [illegible] no.5:229-[illegible]
(Kiev--Atmospheric electricity) 1956 (MLRA 10:9)

GAL'CHENKO, M.S.; ZIL'BERBERG, M.Kh.; KUCHNIK, V. M.

Radiosonde with increased ventilation. Meteor. i gidrol. no.12:46-48 D '56. (MLRA 10:1)

(Radiosondes)

MUCHNIK, V.M., kandidat fiziko-matematicheskikh nauk (Kiyev)

Nature of the thunderstorm. Nauka i zhizn' 23 no.6:41-43 Je '56. (MLRA 9:9)

(Thunderstorms)

36-58-8/12

AUTHOR: Muchnik, V. M.

TITLE: Possible Mechanisms of Hydrometeor Electrization in Cumulo-nimbus Clouds (O vozmozhnykh mekhanizmakh elektrizatsii gidrometeorov v kuchevo - dozhdevykh oblakakh)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1956, Nr 58, pp 53-57 (USSR)

ABSTRACT: Observations indicate that falling snow particles carry considerable electrical charges. However in itself, the presence of charged particles is not sufficient to create an electrical field of an intensity to precipitate thunderstorm discharges. This requires the separation of charges and the formation of areas of opposite sign charges. Since the rate of falling snow particles is low, the rate of separation of charges must also be low. Therefore, the formation of areas of opposite sign charges is also a fairly slow process. However, in impacts between grains of ice (or hail) and snow, both the magnitude of the charges and the rate of their separation must be greater than that in impacts between snowflakes. Thunderclouds often carry ice grains and hail, so that the electrization resulting from the impact of hail and snow is of considerable interest. Experiments devised to study electrification arising under such conditions are described and also electrification

Card 1/2

Possible Mechanisms of Hydrometeor (Cont.)

resulting from the breaking away of droplets from melting pieces of ice in an electrical field. Here charges must arise which depend on the tension in the field. Cross-section diagrams for both experiments are given. There are 2 diagrams, 3 tables, and 3 references of which 2 are Soviet and 1 German.

AVAILABLE: Library of Congress

Card 2/2

8(0) SOV/112-59-1-607

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1, p 81 (USSR)

AUTHOR: Muchnik, V. M.

TITLE: Induction Mechanisms of Electrification in Thunderclouds

PERIODICAL: V sb.: Issled. oblakov, osadkov i grozovogo elektrichestva. L., Gidrometeoizdat, 1957, pp 145-146

ABSTRACT: Two mechanisms of droplet electrification are discussed: during the temporary contact between particles and during the droplet disintegration in an electric field. The first mechanism plays no appreciable role. Results are reported of experimental investigations of electrification accompanying the disintegration of large drops in an electric field and also of electrification caused by collisions of drops with hail and by breaking off the drops from melting ice balls in an electric field.

S.V.S.

Card 1/1

MUCHNIK, V.M.

"Experience in using the torsion balance for measurement of small forces interacting between drops" by V.A. Fedoseev and A.I. Polianskii. Reviewed by V.M. Muchnik. Meteor. i gidrol. no.5:65 My '57.
(Drops) (Torsion balance) (MLRA 10:8)
(Fedoseev, V.A) (Polianskii, A.I.)

MUCHNIK, V.M.

Forecasting cloudbursts and thunderstorms. Trudy Ukr.NIGMI no. 7:72-74 '57. (MIRA 11:4)

(Thunderstorms) (Rain and rainfall)

MUCHNIK, V.M.

Dependence of the electrization caused by the collision of spheres and drops in an electric field on the tension of the field and dimensions of the drops. Trudy Ukr. NIGMI no.8:121-127 '57.
(Atmospheric electricity) (MIRA 11:6)

MUCHNIK, V.M.

Connection between the formation of thunderstorms and the intensity of precipitations. Meteor. i gidrol. no.9:31-33 S '57. (MLRA 10:9)
(Thunderstorms) (Precipitation)

AUTHOR: Muchnik, V. M. SOV/ 50-58-7-16/2[illegible]

TITLE: On Measuring the Intensity of Precipitations by Means of a Locator (Ob izmerenii intensivnosti osadkov lokatorom)

PERIODICAL: Meteorologiya i gidrologiya, 1958, Nr 7, pp. 5[illegible] - 54 (USSR)

ABSTRACT: During the last ten years a number of authors investigated the problem of measuring the intensity of precipitations by means of a locator of a one-centimeter range. The principal possibility of such measurements results from the basic equation of radiolocation:

$$P = P_0 K \frac{Z}{r^2}$$

The author tried to find a connection between Z - the reflectivity of the precipitations - and R - the intensity of the precipitations - on the basis of observations made of the distribution of drops (Ref 1). By means of a calibration curve which had been plotted from the comparison of the known weight of the drops with the diameter of the spots caused by the drops the author determined the distribution

Card 1/3

On Measuring the Intensity of Precipitations by Means of a Locator

of the drops according to their size. According to the distribution of the drops

$$Z = \sum \frac{N_i a_i^6}{V_i} \quad \text{and} \quad R = \frac{\pi}{6} \sum N_i a_i^3$$

were determined. Such methods of measurement approach the radiolocation method more closely than measurements by means of self-registration which supply mean values over longer periods. Two cases are possible in the observations with the locator: 1) When the picture on the screen of the locator agrees with the position of the pluviograph in the area where the precipitations are recorded. 2) When the picture on the screen of the locator does not agree with the position of the pluviograph, or when it does not appear at all although the pluviograph recorded the precipitations. It turned out that for each distance a certain threshold of the intensity of the precipitation exists. Beginning from this limit an agreement of the picture on the screen of the locator with the position shown by the pluviographs in that area is observed. There are 2 figures, 4 tables, and 4 references, 2 of which are Soviet.

SOV/50-58-7-13/20

On Measuring the Intensity of Precipitations by Means of a Locator

1. Precipitation--Intensity 2. Raindrops--Determination 3. Raindrops --Measurement 4. Mathematics

Card 1/ 4

MUCHNIK, V.M.

Some problems concerning the mechanism of hail formation. Trudy UkrNIGMI no.13:73-76 '58. (MIRA 11:12)
(Hail)

MICHNIK, V.M.

Effect of distance on the probability of detecting precipitation cells with radar. Trudy UkrNIGMI no.13:77-81 '58.
(MIRA 11:12)
(Radar in meteorology)

MUCHNIK, V.M.

Relation of electrification to the angle and velocity of sphere and drop collision in the electric field. Trudy UkrNIGMI no.13: 114-118 '58. (MIRA 11:12)
(Cloud physics) (Thunderstorms)

MUCHNIK, V.M.

Establishing the storm and shower situation by the storm information radar. Trudy TSAO no.20:73-81 '58. (MIRA 12:1)
(Radar meteorology)

MUCHNIK, V.M.

Some characteristics of shower and storm centers observed by radar. Trudy TSAO no.20:82-87 '58. (MIRA 12:1)
(Radar meteorology)

VOLEVAKHA, M., nauchnyy sotrudnik; MUCHNIK, V. [Muchnyk, V.], kand. fiz.-mat.nauk

Scattered clouds. Znan.ta pratsia no.5:18-20 My '59.
(MIRA 12:10)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.
(Rain making)

MUCENIK, V.M.

Estimating the water content of cumulo-nimbus clouds.
Trudy UkrNIGMI no.18:76-85 '59. (MIRA 13:7)
(Rain making)

MUCHNIK, V.M.

Altitude of radar-detected precipitation. Trudy UkrNIGMI no.18:86-89 '59. (MIRA 13:7)
(Radar meteorology) (Cloud physics)

KORZHOV, V.A.; MUCHNIK, V.M.; SPASSKAYA, I.V.

Some conclusions from observations on atmospheric electricity and condensation nuclei in Kiev. Mezhdunar. geofiz. god [Kiev] no.2: 124-129 '60. (MIRA 14:1)

1. Ukrainian Research Institute for Hydrometeorology.
(Atmospheric electricity) (Atmospheric nucleation)

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E032/E314

3.5000

AUTHOR: Muchnik, V.M.

TITLE: On the Theory of the Chain Process of Accumulation of Charges in Thunder Clouds

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geofizicheskaya, 1960, No. 4, pp 626 - 629

TEXT: Imyanitov (Ref. 1) has shown that the generation of charges in thunder clouds is mainly a result of elementary electrification processes which depend on the electric field, and that the accumulation of the charges takes place in accordance with an exponential law. The present author has shown (Refs. 2-8) that these elementary electrification processes may be the formation of charges during the break-up of drops, the formation of drops from melting hailstones, and the break-up of drops on collision with hailstones in an electric field. The present paper is concerned with the variation in the electric field in a developed thunder cloud previous to the occurrence of lightning. The disposition of the charged regions is shown in Fig. 1. It is assumed for the sake of simplicity

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On the Theory of the Chain Process of Accumulation of Charges in Thunder Clouds

that these regions are spherical and equal in size. It is further assumed that the break-up of drops takes place in the lower part of the negatively-charged sphere. The electric field along the axis passing through the centres of both spheres at points in the lower part of the negative sphere is then given by Eq. (1), where Q_- and Q_+ are the charges of the negative and positive spheres, respectively, and R is their radius. The discharge will occur in the region between the two spheres, where the electric field is given by Eq. (2). If the two fields given by Eq. (1) and Eq. (2) are denoted by E and E/2 , then when a droplet breaks up in the field given by Eq. (1), i.e. in the lower part of the negative sphere, the charge formed is given by $q = aE$, where a is a constant. Suppose now that f large droplets break up per second per unit area, where $f = I/v$, I being the rainfall intensity and v the volume of a droplet. The fragments of a disintegrated droplet move in the upward direction and then fall again increasing their size to the limiting value. The time T necessary for this process is much greater than one second.

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On the Theory of the Chain Process of Accumulation of Charges in Thunder Clouds

Thus the charge produced during a time dt in the field in the lower part of the negative sphere (Eq. 1) is given by Eq. (4), where α is the droplet multiplication coefficient and is necessarily greater than unity. In this equation it is assumed that the field strength is constant over a cross-section of the lower part of the negatively charged sphere. The charge produced during the disintegration of the droplets is added to the originally existing charge and hence the electric field will increase. At the same time, the charged regions will lose some of their charge owing to the finite conductivity of the medium and rainfall. In approximate calculations, conduction losses can be neglected. On the other hand, the charge lost due to precipitation is given by $dQ_p = Skdt$ where k is a constant and S is the area under consideration. Moreover, the conduction current flowing across a horizontal section of the cloud S is given by $I = dQ_\lambda/dt = Si = S\lambda E$, where dQ_λ is the charge lost by conduction and

On the Theory of the Chain Process of Accumulation of Charges in Thunder Clouds

λ is the conductivity. Combining all these equations and integrating between $t = 0$ and t the following formula is obtained:

$$t = \frac{R^2}{mS} \ln \frac{mE_n - k}{mE_o - k} \qquad (9)$$

where $m = (1 + \alpha/T)af - \lambda$. It is assumed in this integration that the area S remains constant. The time t represents the time interval between the beginning of the accumulation of the electrical charge and the occurrence of lightning. Substituting experimental estimates for the various parameters in Eq. (9) an estimate is found for the time interval t . When it is taken into account that the area S increases during the development stage and in the first approximation is proportional to t so that $S = bt$, then integration of Eq. (8) leads to:

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On the Theory of the Chain Process of Accumulation of Charges in Thunder Clouds

$$t = \left(\frac{2R^2}{bm} \ln \frac{mE_n - k}{mE_o - k} \right)^{1/2} \qquad (10)$$

where E_n is the breakdown field. Using this formula, it is shown that $t = 5$ minutes approx. This is in agreement with radio-echo observations according to which the time between the first appearance of an echo and the lightning discharge is about 12 minutes. There are 1 figure and 20 references: 15 Soviet and 5 English.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Ukrainian Scientific Research Hydrometeorological Institute)

SUBMITTED: October 28, 1958

Card 5/5

MARKOVICH, L.M.; MUCHNIK, V.M.

Structure of thunder showers based on data of radar intensity distribution in connection with height. Ukr. fiz. zhur. 5 no.2: 259-269 Mr-Ap '60. (MIRA 13:12)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

(Radar meteorology) (Thunderstorms)

3/169/62/000/010/037/071
D228/D307

AUTHOR: Muchnik, V.M.

TITLE: Approximate estimate of the water content of cumulo-nimbi

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 10, 1962, 17, abstract 10B98 (In collection: Issled. oblakov, osadkov i grozovogo elektrichestva, M., SSSR, 1961, 204-209)

TEXT: The relation between the amount of precipitation from cumulo-nimbi and the moisture reserve in them at the moment of their rarefaction is investigated on the basis of the data of observations, fulfilled in 1951-1956 by stations of the shower-measuring group Velikiy Anadol'. Cases of rain showers, in which the precipitation lasted for several minutes with an intensity of 0.5 mm/min, were chosen in order to determine the correlation between the amount of cloud water and the precipitation layer. It was established as a result of the analysis that showers with this intensity have an

Card 1/3

Approximate estimation ...

average duration of somewhat more than 2 hours, the precipitation layer exceeding the equivalent cloud water layer by approximately 3-fold. The average magnitude of the ratio of the layer of precipitation, falling throughout the duration of a separate shower (approximately 60 min), to the layer of cloud-stored water constitutes 4.9; according to these data the renewal of the water reserve in cumulonimbi occurs on an average of every 12 minutes. The ascending current velocity at the cloud base, which is necessary for ensuring this exchange of water reserves, amounts to about 1 m/sec if the temperature at the ground surface is 20°C, the temperature of the cloud base is 10°C, the vertical temperature gradient is linear, and the height of the lower boundary is 1000 m. In separate cases the quantity of precipitation exceeds the amount of cloud water by 18-fold. The corresponding calculation shows that the exchange of the cloud water reserve thereby occurs every 3 minutes, and that the ascending movement velocities exceed 3 m/sec. Depending on the distance from the center of a shower the change in the intensity, and hence in the water content, of precipitation at the ground surface has an exponential character. The water content changes analog-

Card 2/3

Approximate estimate ...

ously with height upwards from the zone of maximum water content; downwards from this zone the change occurs almost linearly. The average magnitude of the water content in the zone containing the most water is approximately 2 g/m^3 higher than the average water content near the ground surface. The data of radar observations of the upper precipitation echo boundary in a thunderstorm were used to determine the average moisture reserve in a vertical column of precipitation. Taking in accordance with these data the average echo height for developed thunderstorms to be equal to 8000 m, and using data about the maximum intensity of showers, the author determined for each separate occasion the mean water reserve of a shower and the ratio of the layer of precipitation, falling during a shower, to the value of the average water reserve of a shower. Subject to the nature of the shower the ratio of the precipitation layer to the water reserve varies from 1.0 to 7.1; the average ratio for 26 cases of observation amounts to 3.6. The resulting data allowed the author to conclude that the water content of cumulo-nimbi is governed not so much by the moisture, stored in them at a certain moment, but rather by the process whereby water vapor is supplied to the cloud throughout its life activity. [Abstracter's note: Complete translation]

Card 3/3

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AUTHOR: Muchnik, V. M.

TITLE: The accuracy of rain intensity measurements by means of radar

PERIODICAL: Meteorologiya i gidrologiya, no. 2, 1961, 44-47

TEXT: In the present paper, the author treats the problem of the accuracy of rain intensity measurements by means of radar. This accuracy above all depends on the qualitative relationship between radar-measured reflection and the precipitation intensity measured by means of a pluviograph or any other device: $L = \beta I^{\alpha}$ – (1). L -- reflection (mm^6/m^3); I -- intensity of precipitation (mm/h); α and β -- constants. The accuracy attained by the radar method which is based on reflection measurement may be determined from data that were ascertained on the observation of rain spectra. Between April and December 1958, the author measured rain spectra in Kiyev by means of the filtering-paper method. A 500 cm^2 large sheet of filtering-paper was used. The time of measurement was 3 to 10 - 15 sec, according

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to rain intensity. A total of 42 spectra of drops was measured within 12 rainy days. Rain intensity and reflection were calculated from counting the drops at spacings of 0.01 cm. When small drops (diameter < 0.04cm) were neglected, then the measuring error was 1 - 3 % in the case of intensity and 1% at most in thecase of the reflection measurement. From the logarithms of intensity and of reflection (Fig. 1) for every rainy day a fairly accurate relation between L and I was found. However, α and β did not remain unchanged; but it may happen that measurements made on one and the same day do not form a straight line. Thus, e.g. the spectrum of a rain from convective clouds depends to a considerable extent on their vertical evolution and on the speed of the rising currents. The latter may differ even between adjacent cloud systems. On the assumption that the reflection is measured precisely and that the errors arise as a consequence of the L-I-relationship that is not observed exactly in (1), the root mean square error amounts to 1.5%, the probable error of an individual measurement to 6%, and the maximum error to 30%. These facts show that the relationship between L and I in formula (1) has to be followed sufficiently close and that precipitation intensity data as

measured by means of radar methods are sufficiently accurate for practical use. The respective radar instruments have not yet been developed. The author made an attempt to find the factors which determine the parameters α and β. Data (Fig. 1) show that for the major part the L-versus-I straight lines are parallel. With one of the straight lines as a base, all the others that have been plotted through measurements may be approximated by formula (1), where α is a constant and β a parameter. The use of a single-parameter formula was found to be sufficient for practice although the errors are greater than in the case of a two-parameter formula. At least, it guarantees higher accuracy than a formula with a constant factor and an exponent. The isopleths of the β-values with respect to the altitude of the isothermal zero line and the air-humidity deficit on the surface are shown in Fig. 2. When this diagram is used, the root mean square error amounts to 3.9%, the probable error in an individual measurement to 16.1%, and the maximum error to 48%. More data on the rain spectra will most likely lead to the determination of a more exact relationship between β, the altitude of the 0°C isotherm, the air-humidity deficit near the ground, and, maybe, also with some other meteorologic elements. Besides,

S/050/61/000/002/004/004
B117/B209

The accuracy of rain intensity....

the β-values could then be classified according to the types of rain. The vertical distribution of the radio echo intensity from rain showers depends on their structure and therefore must influence the L-I dependence. Observation of rain by means of radar and rain spectra measurements simultaneously may contribute to a more accurate measurement of the intensity of precipitation. The author thanks L. V. Povorozhenko and Yu. S. Rud'ko for the evaluation of the rain spectra observations. I. V. Litvinov is mentioned in the paper. There are 2 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

88920

S/050/61/000/002/004/004
B117/B209

The accuracy of rain intensity...

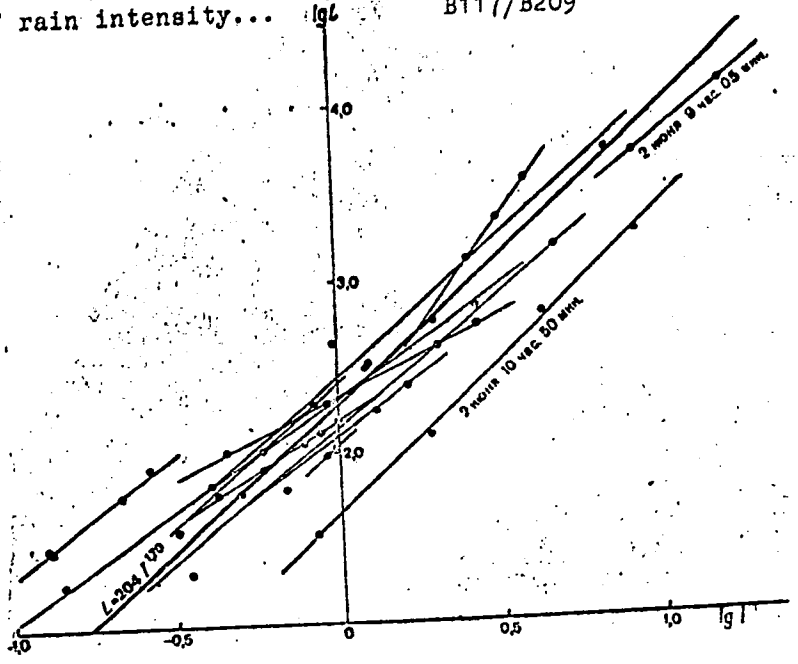

Fig. 1

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B117/B209

The accuracy of rain intensity...

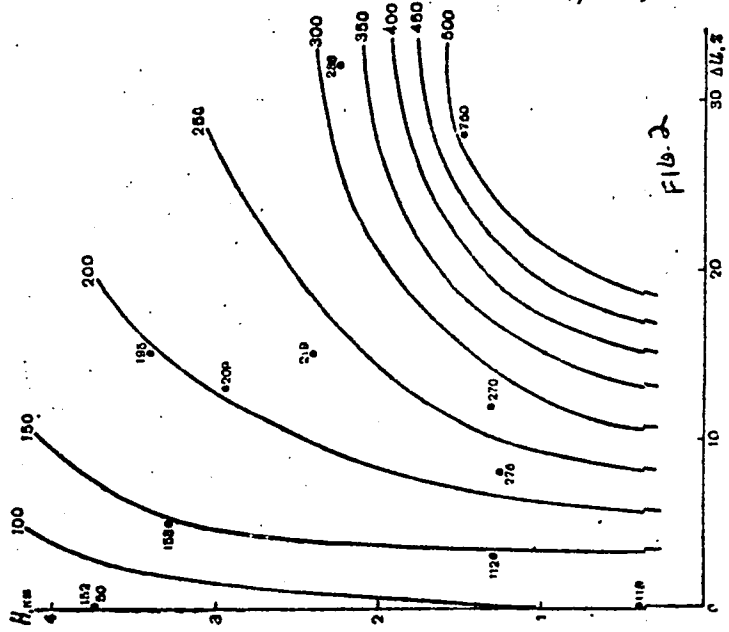

Fig. 2

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MUCHNIK, V.M.

Some problems in radar measurement of precipitation.
Trudy UkrNIGMI no.26:34-46 '61. (MIRA 15:2)
(Precipitation(Meteorology)—Measurment))
(Radar meteorology)

34503
S/169/62/000/002/041/072
D228/D301

3.5000

AUTHORS: Markovich, M. L., Muchnik, V. M. and Sirotyuk, L. V.

TITLE: Some data on the structure and development of thunderstorm showers obtained on the basis of radar measurements

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 27, abstract 2B204 (Tr. Ukr. n.-i. gidrometeorol. in-ta, no. 26, 1961, 47-57)

TEXT: Adjusting the receiver amplification the authors obtained different boundaries of shower foci and determined the cloud-echo value Z at these boundaries. Using an empirical correlation connecting Z with the precipitation intensity I ($Z-ß\ I^{\alpha}$) the appropriate precipitation intensity I was ascertained. The coefficients $ß = 1.69$ and $\alpha = 3.27$ were found from the data of 88 cases of rain observations at Kiyev in 1958 and 1959. The ratio of the receiver's sensitivity to the power emission magnitude was controlled by

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Some data on ...

means of an echo-device fixed at a distance of 2 m from the aerial. During the observations the screen was photographed at 10 different gradations of the receiver's sensitivity (approximately every 2 - 3 db). The full section of the focus for all gradations was accomplished in 60 sec. The intervals during the photographing amounted to 10 - 15 min. Photographs of foci with clear boundaries at all sensitivity gradations were selected for analysis. The exponential dependence of the precipitation intensity on the distance to the focal center -- $I = b \times a^r$ -- is established from observations on 57 foci during 11 days with rain. Divergences from the exponential law are noted for peripheral and central parts of a focus. It is apparent from the data adduced in a table that the magnitudes of "a" and "b" vary from case to case in broad limits and have to be found separately for each focus. When considering the rate of focal development and attenuation the authors established that the area of a focus grows (during its development) or diminishes (during its attenuation) linearly with time. The areas of foci, enveloped by the isolines of equal precipitation intensity, also grow

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Some data on ...

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D228/D301

(or diminish) linearly with time. The change in the maximum precipitation intensity at the center of a focus, too, proceeds linearly with time. /Abstracter's note: Complete translation./

Card 3/3

S/169/62/000/002/040/072
D228/D301

AUTHORS: Muchnik, V. M. and Shmukler, A. Kh.

TITLE: Icing processes at the peaks of thick cumulus clouds

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 23-24 abstract 2B186 (Tr. Ukr. n.-i. gidrometeorol. in-ta no. 26, 1961, 58-63)

TEXT: The freezing of drops, which starts from their surface, is, as a rule, accompanied by the bursting and flying out of large numbers of fragments. At temperatures below -12° the probability of the freezing of cloud droplets is rather great; the fragments which thereby fly out collide with other drops and cause them to freeze. The authors reckon that this phenomenon is the cause of the [illegible] process leading to the freezing of the whole summit of a cloud [illegible]e freezing the drops eject ice fragments which disinte-grat[illegible] collide with other drops; this induces their subsequent freezing with the ejection of new fragments, etc. The speed of removal of the debris from an original drop is determined by the

Card 1/3

Icing processes at ...

average velocity of movement of the debris at the time of a drop's specific freezing -- u; by the average length of flight of a fragment before collision -- $\bar{\lambda}$; and by the mean retardation time $\bar{\tau}$ for the flight of the fragments from a freezing drop after its collision with an ice particle. Assuming a cloud to be homogeneous, and taking into account the mechanism of turbulence diffusion (with the coefficient D), the authors find that the mean square of the distance of debris from the site of their conception for a time t equals:

$$\bar{R}^2 = 4\left[D + \frac{1}{3}\,\frac{\bar{\lambda}u}{1 + (\bar{\tau}u/\bar{\lambda})}\right]t$$

In deriving the main correlations no account is taken of the existence of the braking of ice particles in the air (the braking path is, evidently, often substantially less than the magnitude

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Icing processes at ...

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D228/D301

of λ) and of the natural speed of their fall. [Abstracter's note: Complete translation.]

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MUCHNIK, V.M.; RUD'KO, Yu.S.

Freezing characteristics of supercooled water drops. Trudy UkrNIGMI no.26:64-73 '61. (MIRA 15:2)
(Cloud physics)

MUCHNIK, V. [Muchnyk, V.], kand.fiz.-matem.nauk

Thunderstorm. Nauka i zhyttia 12 no.9:40-41 S '62. (MIRA 16:1)
(Thunderstorms)

MICHNIK, V.M.; RUD'KO, Yu.S.

Formation of hoarfrost on frozen drops of water in an electrical field. Izv. AN SSSR. Ser.geofiz. no.10:1450-1452 O '62.
(MIRA 16:2)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

(Frost)

MARKOVICH, M.L.; MUCHNIK, V.M.

Experience in distance measurement of precipitation quantity by radar. Trudy UkrNIGMI no.36:74-82'63 (MIRA 17:7)

VOLYNETS, L.M.; MARKOVICH, M.L.; MUCHNIK, V.M.

Some problems in increasing the accuracy of radar measurement of amounts of precipitation. Trudy UkrNIGMI no.42:42-52 '64
(MIRA 18:1)

VOLYNETS, L.M.; MARKOVICH, M.L.; MUCHNIK, V.M.

Some characteristics of individual showers according to data of radar observations. Meteor. i gidrol. no.3:21-23 Mr '65. (MIRA 18:2)

1. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut.

L 20827-66 EWT(1)/FCC GW

ACCESSION NR: AT5017684 UR/2599/65/000/047/0051/0058

AUTHORS: Volynets, L. M.; Markovich, M. L.; Muchnik, V. M. 10 9 B+1

TITLE: Some results of measuring rainfall amounts per area by radar

SOURCE: Kiyev. Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut. Trudy, no. 47, 1965. Voprosy aktivnykh vozdeystviy na atmosfernyye protsessy (Problems of active influences on atmospheric processes), 51-58

TOPIC TAGS: rainfall, radar, measurement accuracy, weather station

ABSTRACT: The precision of radar measurements of rainfall in showers is examined in relation to its dependence on size of area and length of time interval between measurements. It was found that the precision increases as the area of measurements is increased. In comparing such computations with rain gage measurements at stations arranged in a network with a density of 1 per 16 km^2, the average error for an area of 81 km^2 proved to be 12%, with a maximum of 37%. For an area of 162 km^2 the corresponding values are 10 and 30%, for 324 km^2 8 and 16%, and for 648 km^2 7 and 14%. The average rainfall for the 81-km^2 area was 0.1-4.2 mm.

Card 1/2

L 20027-66

ACCESSION NR: AT5017684

Two methods of computing average rainfall were considered. One was based on the assumption that the rainfall intensity does not change during the time interval between measurements, and the other was based on the assumption that the intensity varies linearly with time during the interval. For 2-minute intervals between measurements, the method of computation (for rainfall per hour for the 81-km^2 area) made little difference on the results. For intervals of 4 to 10 minutes, however, it was found to be much more accurate to use the second method. This accuracy further depends on the length of the time interval. The average variation for computations with a 4-minute interval, using the second method, is 3% as compared with the 2-minute interval; the maximum is 6%. For the 6-minute interval the variance is 4% for the average, 7% for the maximum, and for the 10-minute interval the two values are 10 and 29%. It thus becomes clear that measurements should be made at intervals of 2 minutes or less. Orig. art. has: 1 figure, 3 tables, and 3 formulas.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut (Ukrainian Scientific Research Hydrometeorological Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES

NO REF SOV: 003 OTHER: 003

Card 2/2

ACC NR: AP6022220 SOURCE CODE: UR/0362/66/002/006/0617/0629

AUTHOR: Volynets, L. M.; Markovich, M. L.; Muchnik, V. M.

ORG: Ukrainian hydrometeorological research institute (Ukrainskiy nauchno-issledovatel'skiy gidrometeorologicheskiy institut)

TITLE: Results of rainfall measurements by a distance-compensated radar

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 6, 1966, 617-629

TOPIC TAGS: radar, meteorologic radar, distance compensated signal radar, atmospheric precipitation/ARS-3 meteorologic radar

ABSTRACT: This paper discusses an improved meteorological radar with echo signal intensity compensation for the distance, and presents the results of rainfall measurements. Distance compensation is achieved by a logarithmic IF amplifier proposed by N. Kodaira (Pap.Meteor. Soc. Japan, v.10, no.2, 1959), which was incorporated into a standard ARS-3 weather radar. Compression of the dynamic correction range was added. Correction was effected between 8 and 80 km, corresponding to $21\log(R/R_0)=20db$; $R_0=8km$. Results of a series of 15 rainfall measurements are presented. The radar delivers better data, faster. Error sources are discussed and thoughts on their alleviation given. Operation of the equipment and evaluation of the data are described in detail. Orig. art. has 4 figures, 10 formulas and 6 tables.

SUB CODE: 04, 17/ SUBM DATE: 10Jan66/ ORIG REF: 007/ OTH REF: 002

Card 1/1 UDC 551.501.81

MUCHNIK, V. S.

Coal Mines and Mining

Mastering the technology of underground hydraulic coal mining. Ugol' 27 no. 4, 1952

Monthly List of Russian Accessions, Library of Congress, August 1952 UNCLASSIFIED.

MUCHNIK, V. S.
USSR/Mining

Card 1/1

Authors : Muchnik, V. S.

Title : First Stage of the Industrial Application of the Technology of Underground Hydraulic Excavation of Coal.

Periodical : Mekh. Trud. Rab. Ed. 3, 32 - 35, Apr - May 1954

Abstract : The hydraulic slope sinking employed in the "Polysaevskaya - Severnaya" coal mine is described. A diagram on the hydraulic slope sinking operations is presented and the machinery employed during the above operations is listed. Advantages of the hydraulic sinking over the standard sinking procedures are pointed out. A graph on the productivity of labor. Graph; diagrams; drawings.

Institution : ....

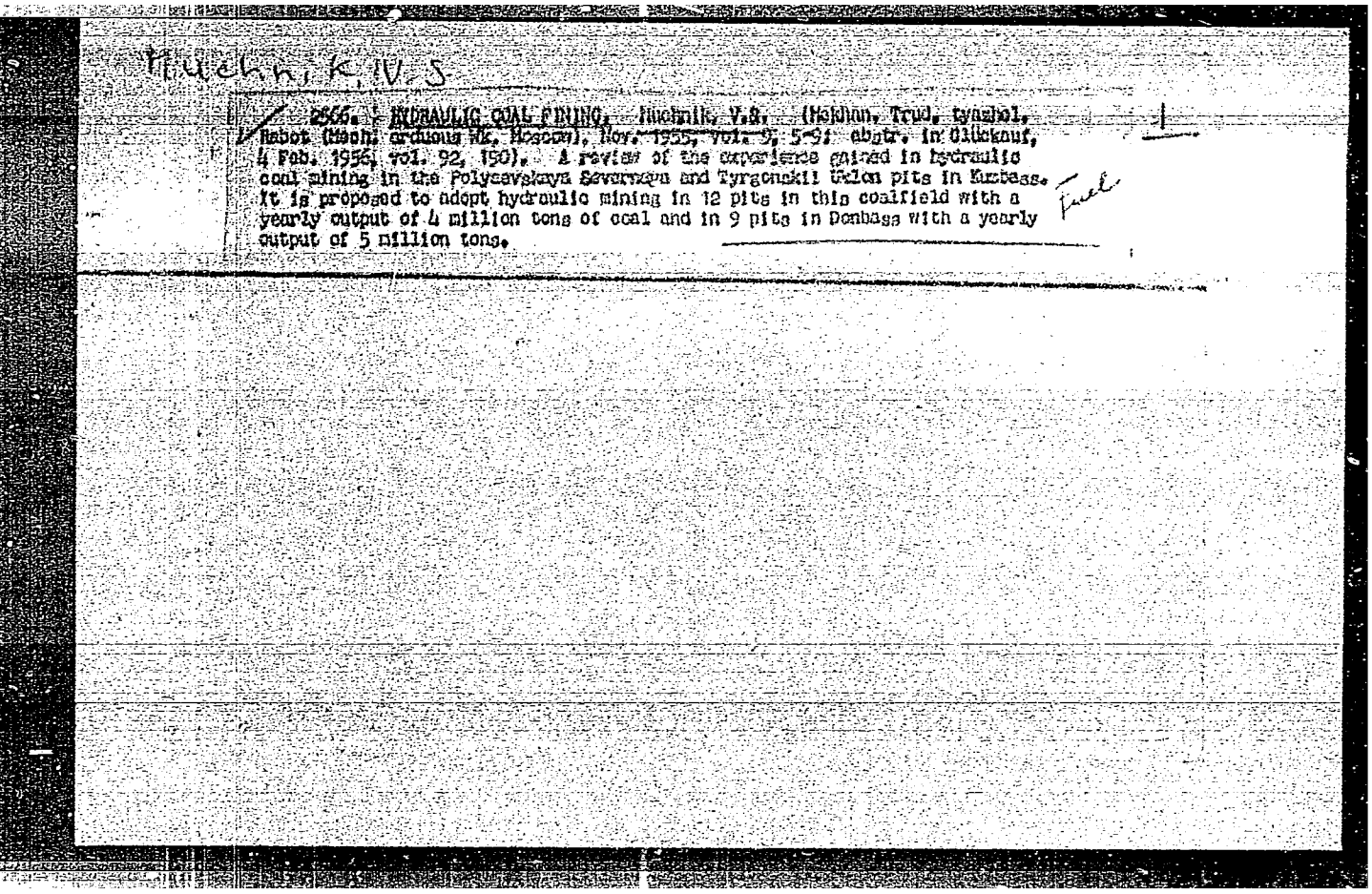
Submitted : ....

MUCHNIK, V.S.

MUCHNIK, V.

New development in underground hydraulic coal mining. Mast.ugl. 3 no.8:11-13 Ag '54. (MLRA 7:9)

1. Zamestitel' direktora Kuznetskogo nauchno-issledovatel'skogo ugol'nogo instituta.
(Coal mines and mining)



Hydraulic, V.S.

2566. HYDRAULIC COAL MINING. Hudnik, V.S. (Gidrav. Trud. tyazhel. rabot (Nauch. ordenona NK, Moscow), Nov. 1955, vol. 9, 5-9; abstr. in Glückauf, 4 Feb. 1956, vol. 92, 150). A review of the experience gained in hydraulic coal mining in the Polysayevskaya Severnaya and Tyrgenskii Ugles pits in Kuzbass. It is proposed to adopt hydraulic mining in 12 pits in this coalfield with a yearly output of 4 million tons of coal and in 9 pits in Donbass with a yearly output of 5 million tons.

MUCHNIK, Vladimir Semenovich; OKHRIMENKO, V.A., redaktor izdatel'stva; KOROVENKOVA, Z.A., tekhnicheskiy redaktor

[Experience in underground coal extraction by hydraulic means and ways for inproving it] Opyt podzemnoi dobychi uglia gidravlicheskim sposobom i puti ego sovershenstvovaniia. Moskva, Ugletekhizdat, 1956. 31 p. (MLRA 10:2)

(Coal mines and mining) (Hydraulic mining)

AUTHOR: Muchnik, V.S., Doctor of Technical Sciences 118-58-6-3/21

TITLE: A New Stage in the Industrial Application of Hydraulic Underground Coal Mining (Novyy etap promyshlennogo primeneniya podzemnoy gidravlicheskoy dobychi uglya)

PERIODICAL: Mekhanizatsiya trudoyëmkikh i tyazhëlykh rabot, 1958, Nr 6, pp 6-9 (USSR)

ABSTRACT: At present the main task of hydraulic coal mining is to establish special mining districts equipped with hydraulic transportation means to supply big consumers. The Kuzbass could thus supply the Belovskaya elektrostantsiya (Belovo Electric Power Plant) the Yuzhkuzbassgres, the Tom'-Usinskaya elektrostantsiya (Tom'-Usinskaya Electric Power Plant), Zapadno-Sibirskiy metallurgicheskiy zavod (Western-Siberia Metallurgical Plant), etc. Hydraulic coal mining and transportation will considerably reduce the net cost of electric power. Hydraulic transportation over a distance of 20 km is almost 3 times cheaper than railroad transport. Hydraulic transportation over a distance of several hundred km will be profitable when a system as proposed by the Dnepropetrovskiy gornyy institut (Dnepropetrovsk Mining Institute) - author Dotsent Ye.F. Ogarkov - is used. Until now the utilization of hydraulic mining processes however,

Card 1/3

A New Stage in the Industrial Application of Hydraulic Underground Coal Mining

has been carried out only partly, because the machines applied are of limited productivity. Now, hydraulic monitors are being designed which are provided with semi-automatic hydraulic control and are calculated for pressures up to 100 atm. Experiments and theoretical research have shown that pressures of 80-90 atm are sufficient to ensure satisfactory productivity. The first industrial hydraulic level driving machine (already in use at the "Polysayevskaya Severnaya" mine) of the type PKG-4, was designed by the Lenin Prize laureate, Gumennik. The machine extracts 70-80 tons of coal per hour. The coal pumps of the type 6NUV and 5ShNV, which are still used have an output of 300 and 550 cubic meters per hour. The new 10UVT has an output of 1,000 cubic meters, developing pressures up to 250 m. The 10UVT is easy to operate and saves labor. Less developed is the dehydrating equipment. This obstacle prevents further progress in industrial hydraulic mining. The capacities of existing centrifuges (UV-1, UTsM-1, UTsM-3, NOGSh-1,800, the filtering centrifuge VSh-10) are by far insufficient. It is planned to design a filtering centrifuge with a capacity of 250 tons per hour. The machine building industry is advised to

A New Stage in the Industrial Application of Hydraulic Underground Coal Mining

speed up the output of the necessary equipment. Self-propelled hydraulic excavation machines with remote control operated from drifts, flexible hoses made of kapron, calculated for 100 atm pressure, pipes made of plastic material, etc. are also needed. For long distance hydraulic transportation, tubes, reinforced with basalt plates to increase their durability, are wanted.
There are 2 photos, 1 graph, 1 table and 1 diagram.

1. Coal mining--USSR 2. Hydraulics--Applications

Card 3/3

MUCHNIK, V.S.

Technological features of hydraulic coal mining. Zap. LGI 41 no.1:3-16 '58. (MIRA 16:5)
(Hydraulic mining)

MUCHNIK, V.S., doktor tekhn.nauk; SHEN GUAN'-KHAN' [Shêng Kuan-han]

Changes in systems of mining and development of coal seams in connection with the automatization of extraction in hydraulic mining. Ugol' 35 no.8:29-34 Ag '60. (MIRA 13:9)
(Hydraulic mining) (Automatic control)

SPIVAKOVSKIY, Aleksandr Onisimovich; MUCHNIK, Vladimir Semenovich, doktor tekhn. nauk; YUFIN, Andrey Pavlovich, doktor tekhn. nauk; SMOLDYREV, Anatoliy Yevtikheyevich, kand. tekhn. nauk; OFENGENDEN, Naum Yefimovich, kand. tekhn. nauk; BORISENKO, Lev Dmitriyevich, kand. tekhn. nauk; TRAYNIS, Viulen Vladimirovich, kand. tekhn. nauk; Prinimali uchastiye: KURBATOV, A.K., inzh.; MARKOV, Yu.A., inzh.; KORSHUNOV, A.P., inzh.; EKBER, B.Ya., otv. red.; KOVAL', I.V., red.izd-va; IL'INSKAYA, G.M., tekhn. red.

[Hydraulic and pneumatic transportation in mining enterprises]Gidravlicheskii i pnevmaticheskii transport na gornykh predpriiatiiakh. Moskva, Gosgortekhizdat, 1962. 250 p. (MIRA 16:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Spivakovskiy). 2. Institut gornogo dela im. A.A.Skochinskogo (for Smoldyrev). 3. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut po gidrodobyche uglya (for Muchnik). 4. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Ofengenden). 5. Moskovskiy inzhenerno-stroitel'nyy institut im. V.V.Kuybysheva (for Yufin).
(Pneumatic conveying) (Hydraulic conveying)

MUCHNIK, V.S., prof., doktor tekhn. nauk

Developments in the technology of underground hydraulic and mechanized hydraulic coal mining. Trudy VNIIGidrouglia no.3: 3-38 '63 (MIRA 18:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

MUCHNIK, V.S., doktor tekhn.nauk; RECHIN, V.D.; SIROTINA, R.I.

Introduction of hydraulic coal mining in Kuznetsk Basin mines. Biul.tekh.-ekon.inform.Gos.nauch -issl.inst.nauch. i tekh. inform. 17 no. 5:13-14 My '64. (MIRA 17:6)

MUCHNIK, V.S., doktor tekhn. nauk

Theories of designing hydraulic mines. Ugol' 39 no.9:75-80 S '64.
(MIRA 17:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

MUCHNIK, V.S., prof., doktor tekhn. nauk

Expanding the technology of underground hydraulic mining and mechanized hydraulic coal mining. Trudy VNIIGidrouglia no.4: 3-11 '64. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

NUROK, Grigoriy Arkad'yevich, prof., [illegible] tekhn. nauk. [illegible]
nimali uchastiye: TSYNIS, V.V., kand. tekhn. nauk; [illegible]
K.G., dots., kand. tekhn. nauk; [illegible], retsenzent; MUCHNIK, V.S., prof., doktor tekhn. nauk, retsenzent; NOVOSHILOV, M.A., prof., doktor tekhn. nauk, retsenzent; IVANOV, A.Ye., [illegible] red.; KHOLIN, N.I., prof., red.

[Technology and planning of the mechanized [illegible] mining operations] Tekhnologiia i proektirovanie [illegible] nizatsii gornykh rabot. Moskva, Nedra, [illegible]
(MLA 16:5)

MUCHNIK, V.S., prof., doktor tekhn. nauk; TEODOROVICH, B.A., kand. tekhn. nauk; ZHABIN, G.I., inzh.; SAL'NIKOV, V.R., inzh.

Automatic shield used for the undercutting of a thing layer from a coal block by means of a strong jet of water. Trudy VNIIGidrouglia no.2:3-12 '63. (MIRA 17:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut dobychi uglya gidravlicheskim sposobom.

MUCHNIK, Z. Sh.

USSR/Medicine - Roentgenology

Card 1/1

Authors : Muchnik, Z. Sh., and Narvoin, L. I.

Title : Adaptation of the RU-525 X-ray apparatus to accommodate a screen. x 40 cm

Periodical : Vest Rentgen i Radiol 1, 75-76, 1954

Abstract : Describes reconstruction of the RU-525 X-ray apparatus to accommodate a 30 x 40 cm screen and thus enable the apparatus to X-ray the chest [illegible] ity. Prior to reconstruction, this apparatus could only accommodate a screen of 24 x 30 cm. No references. Three photographs of the apparatus.

Institution : Kotovsk Regional Hospital (Head Physician-S. Ye. Kharitonov) and the Republic's X-ray Center (Chief-Candidate Medical Sciences N. Ya. Mil'man) Moldavian SSR

IA 172T24

MUCHNIKOV V. M.,

USSR/Engineering - Railway Transport 21 Oct 49

"Forces Arising in Coupling Draw Bars of a Nonhomogeneous Train in Starting," V. M. Muchnikov

"Dok Ak Nauk SSSR" Vol LXVIII, No 6, pp 1001-1004

In previous works, problem of forces in draw gear during longitudinal oscillations of rolling stock (which arise in initial moment of motion) had been solved for case where rolling stock consisted of identical cars. Author solved same problem when rolling stock is not identical. Submitted by Acad A. I. Nekrasov 26 Aug 49.

172T24

MUCHNIKOV, V.M.

Mučnikov, V. M. On a general method of solution of the equation of motion of a train. Doklady Akad. Nauk SSSR (N.S.) 81, 521–524 (1951). (Russian)

A train, considered as a uniform elastic cable with mass (locomotive) attached, passes with constant velocity over a track whose elevation is a continuous and piecewise linear function. Longitudinal displacements and stresses are studied. An interesting exercise in formal operational mathematics, but several errors and omissions may lead to confusion. *R. V. Gaskell* (Bellevue, Wash.).

Source: Mathematical Reviews, Vol. 13 No. 6

MUCHNIKOV, V.M.

MUCHNIKOV, V.M.; LEVANTOVSKIY, V.I., nauchnyy redaktor; TUMARKIN, D.M., redaktor; DAKHNOV, V.S., tekhnicheskiy redaktor; CHEBYSHEVA, Ye.A., tekhnicheskiy redaktor

[Some methods of calculating vibrations of elastic systems under a moving load] Nekotorye metody rascheta uprugikh sistem na kolebaniia pri podvizhnoi nagruzke. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 130 p. [Microfilm] (MLRA 7:10)
(Strains and stresses) (Vibrations)

Mechanics, Rational

GUTMAN, L.N. (Moskva); MUCHNIKOV, V.M. (Moskva)

An equilibrium equation of elastic bodies taking after effect into consideration. Inzh.sbor. 24:165-173 '56. (MLRA 10:5)
(Elastic solids)

MUCHNIKOV, V.M., dotsent, kand. tekhn. nauk

Approximate method for investigating relaxation processes. Izv. vys. ucheb. zav.; geod. i aerof. no.5:106-116 '64. (MIRA 18:5)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii.

MUCHOVA, Marie

Qualification of teachers of geography in the nine-year schools of 10 selected districts in Czech Lands. Sbor sem 68 no.1:107-109 '63.

TARABCAK, M.; Technicka spolupraca: POSPISILOVA, M.; MUCHOVA, T.

Synergistic and antagonistic effects of antibiotics on Staphylococcus aureus. Bratisl. lek. listy 43 Pt. 1 no.11: 653-661 '63.

1. Krajska hygienicko-epidemiologicka stanica v Kosiciach, riaditel MUDr. I. Kratochvil.
(STAPHYLOCOCCUS) (ANTIBIOTICS) (PENICILLIN)
(DIHYDROSTREPTOMYCIN) (CHLORAMPHENICOL)
(CHLORTETRACYCLINE) (OXYTETRACYCLINE)
(TETRACYCLINE) (SPIRAMYCIN) (ERYTHROMYCIN)
(NOVOBIOCIN) (OLEANDOMYCIN) (NEOMYCIN)